

AMENDMENTS TO THE CLAIMS

1-31. (Canceled)

32. (Currently Amended) A computing device comprising:

a processor; and

a compiler apparatus for translating a source program into a machine language program, said compiler apparatus comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

~~wherein the optimization unit performs optimization by allocating data in a memory region following a directive when the optimization unit acquires the directive on alignment of the array data to be allocated in a memory region,~~

~~wherein the directive acquisition unit detects a designation of alignment of data that a pointer variable of argument shown by the name of a specific variable indicates in the source program~~ directive for guaranteeing that data indicated by a pointer variable shown by the name of a specific variable is aligned by a specific value in the source program, and

~~wherein the optimization unit performs the optimization assuming that the data indicated by the pointer variable that is an object of the directive designation detected by the directive~~

acquisition unit is allocated in the memory region by the guaranteed value of designated-alignment.

33-41. (Canceled)

42. (Previously Presented) The computing device according to claim 32, wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.

43-47. (Canceled)

48. (Currently Amended) A computing device comprising:
a processor; and
a compiler apparatus for translating a source program into a machine language program, said compiler apparatus comprising:
a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and
an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the the ~~[[an]]~~ acquired directive,
wherein the directive acquisition unit detects ~~designation of the number of iterations of~~

~~specific loop processing in the source program, a directive for guaranteeing that the number of iterations of specific loop processing in the source program is one value of a set of values, and~~

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations;~~

~~wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated; and~~

~~wherein the optimization unit restrains generation of an escape code that is needed in the case of the number of the iterations being 0 when the minimum number is 1 or more when the guaranteed value of the set of values is a value equal to 1 or more.~~

49. (Currently Amended) A computing device comprising:

a processor; and

a compiler apparatus for translating a source program into a machine language program, said compiler apparatus comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the [[an]] acquired directive,

wherein the directive acquisition unit detects ~~designation of the number of iterations of specific loop processing in the source program, a directive for guaranteeing that the number of~~

iterations of specific loop processing in the source program is one value of a set of values, and

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations,~~

~~wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated, and~~

wherein the optimization unit performs the optimization by loop unrolling when the guaranteed value of the set of values is a value equal minimum number is equivalent to or more than the number of development by the loop unrolling.

50. (Currently Amended) A computing device comprising:

a processor; and

a compiler apparatus for translating a source program into a machine language program, said compiler apparatus comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the ~~[[an]]~~ acquired directive,

wherein the directive acquisition unit detects ~~designation of the number of iterations of specific loop processing in the source program, a directive for guaranteeing that the number of~~ iterations of specific loop processing in the source program is one of a set of values, and

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations;~~

~~wherein the designation of the number of the iterations guarantees that the loop processing is iterated only an even number of times; and~~

wherein the optimization unit performs the optimization by loop unrolling assuming that the loop processing that is an object of designation detected by the directive acquisition unit is iterated only the even number of times depending on whether the guaranteed set of values is a set of only even values or a set of only odd values.

51-59. (Canceled)

60. (Currently Amended) A computer-readable recording medium having a compiler stored thereon for causing a computer to translate a source program into a machine language program, said compiler comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the acquired directive,

~~wherein the optimization unit performs optimization by allocating data in a memory region following a directive when the optimization unit acquires the directive on alignment of the~~

array data to be allocated in a memory region,

wherein the directive acquisition unit detects a ~~designation of alignment of data that a pointer variable of argument shown by the name of a specific variable indicates in the source program~~ directive for guaranteeing that data indicated by a pointer variable shown by the name of a specific variable is aligned by a specific value in the source program, and

wherein the optimization unit performs the optimization assuming that the data indicated by the pointer variable that is an object of ~~the directive designation~~ detected by the directive acquisition unit is allocated in the memory region by the guaranteed value of designated alignment.

61. (Canceled)

62. (Previously Presented) The computer-readable recording medium according to claim 60,

wherein the optimization unit generates a pair instruction for transferring two or more kinds of data at the same time regarding a memory access instruction for accessing the data to be allocated in the memory region.

63. (Canceled)

64. (Currently Amended) A computer-readable recording medium having a compiler stored thereon for causing a computer to translate a source program into a machine language

program, said compiler comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the ~~[[an]]~~ acquired directive,

~~wherein the directive acquisition unit detects designation of the number of iterations of specific loop processing in the source program; a directive for guaranteeing that the number of iterations of specific loop processing in the source program is one value of a set of values, and~~

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations;~~

~~wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated; and~~

~~wherein the optimization unit restrains generation of an escape code that is needed in the case of the number of the iterations being 0 when the minimum number is 1 or more when the guaranteed value of the set of values is a value equal to 1 or more.~~

65. (Currently Amended) A computer-readable recording medium having a compiler stored thereon for causing a computer to translate a source program into a machine language program, said compiler comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine

language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of machine language instructions following the ~~[[an]]~~ acquired directive,

wherein the directive acquisition unit detects ~~designation of the number of iterations of specific loop processing in the source program; a directive for guaranteeing that the number of iterations of specific loop processing in the source program is one value of a set of values, and~~

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations;~~

~~wherein the designation of the number of the iterations is the minimum number by which the loop processing is iterated, and~~

wherein the optimization unit performs the optimization by loop unrolling when the guaranteed value of the set of values is a value equal ~~minimum number is equivalent to~~ or more than the number of development by the loop unrolling.

66. (Currently Amended) A computer-readable recording medium having a compiler stored thereon for causing a computer to translate a source program into a machine language program, said compiler comprising:

a directive acquisition unit operable to acquire a directive for optimizing a machine language program to be generated; and

an optimization unit operable to perform optimization by generating a sequence of

machine language instructions following the [[an]] acquired directive,

wherein the directive acquisition unit detects ~~designation of the number of iterations of specific loop processing in the source program, a directive for guaranteeing that the number of iterations of specific loop processing in the source program is one of a set of values, and~~

~~wherein the optimization unit performs optimization of loop processing that is an object of the designation detected by the directive acquisition unit based on the designated number of iterations;~~

~~wherein the designation of the number of the iterations guarantees that the loop processing is iterated only an even number of times, and~~

wherein the optimization unit performs the optimization by loop unrolling assuming that the loop processing that is an object of designation detected by the directive acquisition unit is iterated only the even number of times depending on whether the guaranteed set of values is a set of only even values or a set of only odd values.

67. (Canceled)

68. (New) The computing device according to claim 32,

wherein the pointer variable is an argument.

69. (New) The computing device according to claim 32,

wherein the pointer variable is a local variable.